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Fair by design. Addressing the paradox of inclusive design approaches

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Abstract: Inclusive design approaches like universal design prescribe addressing the needs of the widest possible audience in order to consider human differences. Taking differences seriously, however, may imply that "the widest possible audience" is severely restricted. In confronting this paradox, we recruit Rawls' theory of justice as fairness. Applying Rawls' principles to universal design implies that users derive which design allows for equitable use by deliberating under a veil of ignorance concerning their own capacities or limitations. Rather than addressing everyone's needs, being designed universally then means matching what everyone would choose under the condition sketched. Since this can hardly apply to single artefacts, we suggest considering the social distribution of usability as the proper domain of fairness in design instead. Under this reading, just design concerns how usability is distributed across relevant users. Differences in usability are acceptable if overall usability for the worst offs is maximized.

Keywords: Fairness, Inclusive design, Justice, Universal design, Universality

1. Introduction

In the past years, the design community witnessed the development of several design approaches aiming at inclusivity. Depending on the continent or region, these approaches are called universal design (Mace, 1985; Preiser and Ostroff, 2001; Steinfeld and Maisel, 2012), inclusive design (Coleman, 1994; Imrie and Hall, 2001; Coleman, Lebbon, Clarkson and Keates, 2003) or design for all (EIDD Design for All Europe, 2004). Despite some semantic distinctions, all three approaches share a similar purpose: to "ensure that […] products and services address the needs of the widest possible audience, irrespective of age or ability" (Design Council, 2009). For this reason, they are henceforth referred to as 'inclusive design approaches' or, in short, 'inclusive design'. Their common purpose is based on two premises (Clarkson and Coleman 2015: 235):

1. "there is such considerable diversity in mental and physical capability both across the population and over the length of the life-course that the association of 'normality' with 'able-bodiedness' is neither accurate nor acceptable";

2. “disability arises from interactions with the surrounding environment that are amenable to design and structural interventions, and not inherently from capability levels, health status, or associated degrees of impairment”.

Characteristic of these inclusive design approaches is their utopian character. The crux is that it seems impossible to really design for “everyone”. On the one hand, human differences are too wide to be taken into account in all their varieties. On the other hand, it is reasonable to expect that trade-offs are the normal case. Designing to the benefit of the needs connected with a specific kind of capacity is likely to entail some cost with respect to the satisfaction of other needs – what is good for someone who is blind may be different from what is good for someone in a wheelchair. Moreover, given that a moderate scarcity of resources is the normal condition of human societies, choices are likely to be made among concurrent demands. Thus, rather than reconciliation with the diversity of human needs, the output of adopting the stance of inclusive design looks to be conflict. It will always turn out that somebody’s perspective has not been taken into account or – worse – has been harmed. This feature of inclusive design is not only clearly acknowledged as suggested by the term “possible” in the abovementioned definition, but even advanced as a determinative characteristic (Duncan, 2007). In this context, some authors use terms like ‘‘universal design*ing*’’ (Steinfeld & Tauke, 2002), or ‘‘design for more’’ (Herssens, 2011), so as to capture in words the unceasing and dynamic endeavour.

Because of this utopian character, however, critics tend to consider inclusive design approaches in general, and universal design in particular as unrealistic, and use this as an argument not to adopt or teach them (De Cauwer et al., 2009). The question whether universal design is realistic, however, has to do specifically with the differences found in human needs and the moderate scarcity of resources that is characteristic of the human condition, more than with a generic impossibility of designing for each and everyone according to her specific needs – or better, the latter limitation depends on the former (Heylighen, 2014; Winance, 2014). Thus the point is: to what extent is it possible to design a product, space or service that, at the same time, allows for equitable use by everyone and respects the diversity in people’s capacities? In this respect, inclusive design approaches seem to face a paradoxical condition. On the one hand, they prescribe to address the needs of the widest possible audience in order to take into account human differences. On the other hand, taking human differences seriously seems to imply that nothing can be designed that meets the needs of everyone, so that “the widest possible audience” may turn out to be severely restricted.

This paper therefore seeks to contribute to addressing this paradox by focusing on the question what the utopian character of inclusive design implies for design practice. For if inclusive design taken literally is an unattainable goal, the question arises how designers can be fair to users. In order to answer this question we turn to the conceptual and theoretical tools provided by contemporary theories of justice and in particular to the theory of justice as fairness of moral and political philosopher John Rawls (1971; 1986; 1993). A similar question in fact arises in the context of designing the principles according to which the benefits and costs of cooperation are to be distributed among participants in a society conceived as a system of cooperation characterized by a widespread pluralism of values and conceptions of what it is to lead a good life.

The working hypothesis is that the conceptual tools provided by Rawls’ theory of justice as fairness may be recruited by design theory in order to confront the issue at stake. The paper’s objective is to contribute to a theory of just design that offers a way out of the paradox of inclusive design.

2. General frame

Critics have pointed at the lack of academic attention for and critical scrutiny of the overarching principles of inclusive design approaches like universal design, their understanding, and their placement into practice (Imrie, 2012). Exceptions to this rule include studies which confront universal design with a critical theory paradigm (D'Souza 2004), design theory (Heylighen, 2014), design practice (Van der Linden et al., 2016), or informational and market issues (Tobias 2003). Yet other studies analyse how inclusivity relates to quality in design and suggest that a deliberative approach to inclusive design can both help to understand their connection and confront the questions it raises about the relationship between designers and users (e.g., Bianchin & Heylighen 2010, Heylighen & Bianchin 2013).

In this respect, it is noteworthy to consider that researchers have recently stressed the relevance of ethics and social issues to design in general, and inclusive design in particular. It has been claimed that focusing on democracy and justice is of paramount importance to address ethical and social issues that arise within design theory (Pols & Spahn 2015: 366). On the one hand, inclusive design seems connected with a democratic attitude according to which all who are affected by the output of a design process should be included in this process according to a deliberative approach to design that is explicitly connected with the recent deliberative trend in democratic theory (Heylighen & Blanchin 2013). On the other hand, as pointed out in the introduction, inclusive design seems faced with a paradox that is naturally connected with a question of justice. In this sense it has been stressed that, while design methods tend to make reference at least implicitly to the values of democracy and justice, no reference to a specific theory of democracy and justice is made (Pols & Spahn 2015).

We address the demand for a theoretical approach by specifying how the theory of justice can be applied to confront the paradox of inclusive design. The point is that what we label the paradox of inclusive design can be easily seen as raising a question of justice, as it flows from the requirement that the demands stemming from different and potentially conflicting needs can be answered. More specifically the very idea of designing for the largest possible audience faces two connected problems, as it rather obviously operates in conditions of moderate scarcity of resources. The idea of a moderate scarcity in this context is a relatively technical notion stemming from David Hume. It is meant neither to provide a measure of the resources over which agents dispose in a specific situation, nor to suggest a condition in which resources are subject to especially severe limitations. It is meant to convey the rather uncontroversial view that human agency is constrained by the fact that resources are not enough to satisfy the needs and/or desires of all agents and thus agents are likely to compete and conflict over the allocation of goods. This is paradigmatically the condition under which value disagreement and a conflict of interest that naturally proceeds from human differences give rise to a demand for justice, i.e., a demand for general principles according to which conflicts can be adjudicated in ways that can be justified to all those who will be affected (Hume 1738-49, Rawls 1971).

The problems are appropriately identified by Simeon Keates: (a) "many users with severe functional impairments require solutions that would hamper other users" (Keates 2015: 392) and (b) "It is often hard to prioritize which issues are the most important to fix and, occasionally, which ones may actually harm the overall usability and accessibility of the product" (Keates 2015: 398). Keates stresses that, while this is difficult enough for designers where the users are homogeneous, in the case of inclusive design, they are often very heterogeneous. Keates concludes that organizations and designers need assistance to help prioritize the most important issues (ibid.). This is important because it acknowledges that issues do not order themselves according to a naturally shared system

of priorities. Individuals tend in fact to diverge about the priority that should be given to different issues as a result of endorsing different values or conceptions of the good life. This is commonly recognized in moral and political philosophy as the fact of pluralism. Although different readings can be given of what the fact of pluralism amounts to, the common view is that people in a free society tend to be committed to different and conflicting beliefs, values, and conceptions of the good life (Rawls 1993, Habermas 1983, Gutman, Thompson 2004).

A moderate scarcity of resources and the fact of pluralism prototypically design the conditions under which a conflict of interest gives rise to questions of justice: they require some principles to be fixed according to which goods are distributed in a situation where conflicting claims arise about the priority to be accorded to the satisfaction of specific needs and interests. In what follows we explore to what extent a theory of justice as fairness provides tools to confront these issues and therefore solve the paradox of inclusive design. We proceed as follows. First, we define justice in general according to Rawls' theory of justice as fairness and proceed to apply that conception to inclusive design. Second, we analyse this approach focusing on design practice. Third, we suggest a way out of the paradox of inclusive design by considering the distribution of artefacts in a society, instead of single artefacts, as the domain of application for fairness in design. Finally, we conclude by identifying four problems which arise when trying to address the paradox of inclusive design in this way.

3. Towards a theory of just design

3.1 Justice defined

By way of first step towards a theory of just design, we define justice in general according to Rawls' theory of justice as fairness. A good reason to look at Rawls' theory of justice as fairness is that it explicitly aims at justifying the principles of justice that govern the distributions of benefits resulting from social cooperation among agents that differ in their natural talents and capacities as well as in their social position and their conceptions of the good life.

The theoretical tools to confront the task are provided by the idea of the original position, conceived along the lines of social contract theory as the hypothetical initial situation in which agents collectively choose the principles according to which basic social institutions will be regulated. The basic assumption here is that society is a system of cooperation and that social institutions fundamentally rest on collective acceptance, as no system of cooperation that it is supported by mere coercion or deception can be stable over time (Rawls 1971; Searle 1995, 2010). The principles that regulate basic social institutions must be justified to those who are bound by them in order for a system of cooperation to be stable over time.

In this context Rawls' theory suggests that, in order to come out with a result that can be justified to all, agents are to choose the principles of justice under a veil of ignorance that blinds the knowledge they possess of their own natural assets and abilities, their social position, their conception of the good, amongst others. Agents are supposedly provided with the knowledge of general facts about psychology, society – including that of moderate scarcity – and human life. Moreover, agents are taken to be rational in that they are endowed with a conception of the good and the capacity for instrumental reasoning. Finally, they are generally taken to be provided with the motivation to agree on fair terms of cooperation and to comply with them once they are in place (Rawls 1971, 1993). The veil of ignorance just screens out the information that would lead to arbitrarily favouring a specific party – since "we cannot reasonably expect our views to fall into line when they are affected by the

contingencies of our different circumstances" (Rawls 1971: 517).

Rawls thus understands the original position as a “device of representation” designed to convert a question of justification into a deliberative problem. The original position models the conditions under which agents that regard themselves as free and equal are supposed to reach an agreement, and therefore constrains what can be put forward as a good reason in deliberating the principles of justice. It works as a constraint on deliberation insofar as it conveys an impartial and fair point of view that expresses the self-conception of agents as free and equal rational beings (Rawls 1971, 1985; Freeman 2007; Barry 1995).

The expected result is that under this condition rational agents will chose principles that maximize the welfare of the worst off while protecting individual freedom and a fair equality of opportunity (Rawls, 1971; Freeman, 2007).

An important point in Rawls’ theory is that justice turns out to be defined in purely procedural terms, since what counts as the principles is generated by a procedure that is constitutive of the correct output. Justice, that is, is defined not independently from the procedure adopted, but rather as the output of an independent procedure designed to tackle the problem of justification (Elgin 1996).

3.2 Justice in design practice

The second step towards a theory of just design is to analyse how Rawls’ approach to defining justice may fare as seen from the perspective of design practice.

To achieve the purpose of inclusive design, i.e., to address the needs of the widest possible audience, designers seek resonance between the needs of particular groups and the needs of the entire population (Pullin & Newell 2007, Andrews 2014). Pullin and Newell (2007) describe design resonance as a situation “where the needs of the people who have a particular disability coincide with particular able bodied users in particular contexts”. For example, navigating sidewalks with a trolley or pram has resonance with navigating them with a wheelchair – both benefit from curb cuts, i.e., sidewalks flattening into the street. Similarly, communicating in a noisy environment resembles the situation of people who are deaf or speech impaired.

Often, however, seeking resonance between the needs of particular groups and those of the entire population is not trivial. The vantage point Rawls’ theory of justice offers in this context is rather obvious. There is no need to decide in advance what is good for all and/or for each specific group or individual in this case. Instead a procedure is provided from which can be derived what design is just as a result, according to the general structure of justice as fairness (Barry, 1995; D’Agostino et al., 2012).

If we proceed to apply this conception to inclusive design approaches like universal design, the upshot is shifting the way “universal” is understood. To be universal for a designed artefact would not mean that everyone has to be enabled to use it in an equitable way. This is in fact impossible, given human differences. Yet its design can be taken to be universal if it accords to what would be chosen by everyone under the condition sketched, that is under a veil of ignorance about their capacities. This shifts the perspective from considering universal usability in terms of the concrete use one can make of an artefact to considering it in terms of a specific constraint imposed on the choice about how artefacts must be designed in order to pay equal respect to all possible users.

Fairness, however, can hardly be applied to inclusive design issues for single artefacts. Given human differences, virtually no artefact can in fact be designed that can be used by each according to her own specific capacity. Moreover, to design an artefact so that usability for the worst off is

maximized, may severely restrict the usability for users with different capacities or with a different level of capacity of the same kind. A classic example are the abovementioned curb cuts: while they are important for people in a wheelchair and comfortable for people with a trolley or pram, they cause problems for pedestrians who are vision impaired as they rely on a sharp curb to detect the edge of the sidewalk. With respect to design practice, thus either fairness or universality seem to fail.

3.3 A way out of the paradox

A possible way out of the paradox of inclusive design is considering the distribution of artefacts in a society, instead of single artefacts, as the domain of application for fairness in design. In this context, any group, institution, relationship characterized as a system of cooperation can be counted as a society. States, neighbourhoods, NGOs and cities can be all considered as relevant in this sense as well as a transport system, a hospital, or the audience of a movie theatre. According to this reading, the principles of justice apply not to the problem of designing a specific artefact in a way that maximizes usability for the worst offs, but to a different problem: the problem of distributing usability in a society taken as a whole, so that usability for the worst offs is maximized.

This may involve that we should accept some difference in usability provided that the solution maximizes the results for the worst offs in general. In this sense, just design does not rest on whether each user can use an artefact in the same way. On the contrary, it can manage the fact that some users will get more than others by considering a solution just if and only if relative differences go generally to the advantage of the less able or most disadvantaged.

This seems to provide a solution to what we labelled the paradox of inclusive design: inclusive design prescribes to address the needs of the widest possible audience, yet taking human differences seriously will severely restrict "the widest possible audience". Shifting the understanding of "universal" along the procedural line suggested above and focusing on the social distribution of usability rather than on the usability of single artefacts allows for a non-paradoxical understanding of inclusive design. According to this understanding, the apparent contradiction between the aim of designing for the widest possible audience and that of taking difference seriously can be treated as raising a question of justice, and confronted by a procedural conception of justice as fairness.

An important implication of this approach is that it helps clarifying the relationship between inclusive and universal design. We can define design as "universal" if it respects the sketched procedure, and "inclusive" according to the people involved in the relevant decision-making. Inclusivity in this case is relocated from the condition under which people use an artefact concretely to the condition under which people decide how usability is to be distributed. The point about inclusivity is not that all have equal right to use the artefact, but that all should have equal right to participate in the decision about which artefact is to be designed (Heylighen & Bianchin, 2013).

4. Conclusion

We have presented a first attempt at developing a general definition of just design and, based on this definition, at solving the paradox of inclusive design. Our strategy has been to explore to what extent Rawls' theory of justice as fairness can be applied to design practice. The upshot is that a shift in the definition of universal design is required as part of the proposed solution.

Several questions of course remain to be addressed. To start with, there are questions internal to the very project of applying a theory of justice to design practice. A theory of justice is designed to apply to the basic social institutions, and it is an open question whether and how much changing it will undergo when applied to a more restricted and informal context. In the sense relevant to the task of

defining what is fair in design, design practice seems to count as a social context, however. The issue may thus bear some similarity with the task of applying justice as fairness within the family (Okin 1991).

Another problem is that of balancing justice with efficiency in this context, as just design may entail not only a loss in efficiency but also a loss in general usability. Rawls' theory implies that distributive differences may be allowed only when they advantage the worst off. It is an open question in our view whether and how far this applies to usability.

Furthermore, there may be no primary, purely instrumental features of artefacts that in design theory play the role of primary goods in the standard theory of justice. As long as the functions for which artefacts are designed make reference to use-plans it seems that actual capacities, knowledge and circumstances of particular persons should be taken into account (Houkes & Vermaas 2010; Oosterlaken, 2009; 2012). If this is true, the instrumental features of artefacts only make sense within specific teleological contexts and there may be no way to abstract teleology away from usability.

A final problem is how to characterize and identify the worst offs in this context. For instance, is having difficulty to get on or off a sidewalk, as people in wheelchairs and people with a pram or trolley may experience, worse than lacking a guideline to navigate that sidewalk for people who are vision impaired, or the other way around?

Awaiting further analysis of these questions, the approach advanced in this paper highlights the relationship between design practice and the social context, and more generally the relevance of design practice to political issues - and vice-versa. It makes explicit the political implications of design theory, which is likely to challenge prevailing understandings in this area. In addition, the approach extends the domain of justice to the realm of design practice, which is likely to promote new research in this domain.

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